

34. (New) The apparatus of claim 33, wherein the single support frame comprises rollable support members.

35. (New) The apparatus of claim 33, wherein the single support frame comprises adjustable feet.

36. (New) The apparatus of claim 31, wherein the chamber tray comprises an enclosure that houses one or more facilities selected from the group consisting of a pneumatic distribution manifold, process gas manifold, vacuum manifold, water manifold, and helium manifold.

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37. (New) The apparatus of claim 36, wherein the plurality of facility connections are disposed about the enclosure.

REMARKS

This is intended as a full and complete response to the Office Action dated January 15, 2003, having a shortened statutory period for response extended one month to expire on May 15, 2003. Claims 1-3, 6, 8, 11-16, 18-22, 28 and 29 are pending in the application. Claims 2, 3, and 6 have been withdrawn from consideration by the Examiner, and claim 1, 8, 11-16, 18-22, 28 and 29 stand rejected. Applicants have cancelled claims 2, 3, and 6 without prejudice. Applicants have also amended claims 1, 15, 23, and 29 and added new claims 31-37 to more clearly recite aspects of the invention. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1, 8, 11-13, 15-16, 18-19, and 28-29 stand rejected under 35 U.S.C. § 102(e) as being anticipated by *Bright et al.* (U.S. Patent No. 6,312,525). The Examiner states that *Bright et al.* shows the invention as claimed including a transfer chamber 22 comprising one or more access ports 28; one or more load lock chambers 18 disposable about the transfer chamber; one or more process chambers 14 disposable

about the transfer chamber; a plumbing tray 44 disposable about the transfer chamber and having facility connections for each process chamber and load lock chamber; and a chamber tray (valve 38) disposable about the transfer chamber, load lock chamber and transfer chamber, the chamber tray in fluid communication with the facility connections of the plumbing tray, wherein each process chamber is disposable on each chamber tray.

Applicants respectfully traverse this rejection. The valve 38 is not a chamber tray as recited in the claims, contrary to the examiner's assertion. *Bright et al.* discloses a transfer module 12 having interface panels 44 that provide facility connections directly to the process chamber modules 14. (See, *Bright et al.* at col. 6, lines 27-46.) The valve 38 is disposed on a foreline between a remote pumping system and the transfer chamber 22. (See, *Bright et al.* at col. 6, lines 18-21.) Accordingly, *Bright et al.* does not teach, show, or suggest a chamber tray disposed adjacent each process chamber, each load lock chamber and the transfer chamber, the chamber trays each having a plurality of facility connections which are in fluid communication with the facility connections of the plumbing tray, as recited in the amended base claims as well as the new claims 31-37. Accordingly, withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 1, 8, 11-13, 15-16, 18-19, and 28-29 stand rejected under 35 U.S.C. § 102(a) as being anticipated by *Mooring et al.* (WO 99/03133). The Examiner states that *Mooring et al.* shows the invention as claimed including a transfer chamber 22 comprising one or more access ports 28; one or more load lock chambers 18 disposable about the transfer chamber; one or more process chambers 14 disposable about the transfer chamber; a plumbing tray 44 disposable about the transfer chamber and having facility connections for each process chamber and load lock chamber; and a chamber tray (valve 38) disposable about the transfer chamber, load lock chamber and transfer chamber, the chamber tray in fluid communication with the facility connections of the plumbing tray, wherein each process chamber is disposable on each chamber tray.

Applicants respectfully traverse this rejection. *Mooring et al.* (WO 99/03133) claims priority to *Bright et al.* (U.S. Patent No. 6,312,525), and as such discloses a

similar modular vacuum system. As stated above with reference to *Bright et al.*, the valve 38 is disposed on a foreline between a remote pumping system and the transfer chamber 22. The valve 38 is neither a chamber tray as recited in the claims nor does the valve 38 have a plurality of facility connections which are in fluid communication with the facility connections of the plumbing tray, as recited in the claims. Accordingly, withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 1, 11, 13-16, 18-20, and 28-29 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Rubin et al.* (U.S. Patent No. 4,852,516). The Examiner states that "*Rubin et al.* shows the invention as claimed including a multi-chamber apparatus including an initial load lock chamber for storage 102 connected to a multitude of process chambers 100 each chamber including a modular plumbing tray 172 and a chamber tray including links which include water lines, gas lines, vacuum lines, drain lines, and communication lines."

Applicants respectfully traverse the rejection. *Rubin et al.* discloses a processing apparatus 100, each consisting of a processing module 176 disposed on a movable chassis 102. The processing apparatus 100 receives process facilities from a plurality of service facilities extending through a service conduit 172 formed within a floor of the processing room. (See, *Rubin et al.* at col. 6, lines 15-20 and at Figure 7.) *Rubin et al.* further discloses a facility docking subassembly 104 installed above the service conduit 172. The facility docking subassembly 104 is stationery. (See, *Rubin et al.* at col. 6, lines 12-28). The processing apparatus 100 is moved from a remote location to a location overlying the stationery service facility docking subassembly 104 and the two are inter-connected. The stationery facility docking subassembly 104 passes the service facilities from the service conduit 172 to the processing apparatus 100 using docking plates 114 and 158 that are inter-connectable to provide facilities there-through. (See, *Rubin et al.* at col. 5, lines 55-67.)

Rubin et al. does not teach, show, or suggest two or more process chambers disposed about a transfer chamber, as recited in the base claims. *Rubin et al.* also does not teach, show, or suggest a plumbing tray disposed adjacent the transfer chamber and having facility connections for each process chamber and each load lock chamber; or a chamber tray disposed adjacent each process chamber, each load lock chamber

and the transfer chamber, the chamber trays each having a plurality of facility connections which are in fluid communication with the facility connections of the plumbing tray, as recited in the claims. Each chamber tray referred to in the specification is associated with a specific process chamber, load lock chamber, or the transfer chamber. *Rubin et al.* discloses only conduits to connect the chambers to the service conduit. Accordingly, withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 1, 11, 13-16, 18, and 28 stand rejected under 35 U.S.C. § 102(e) as being anticipated by *Lei et al.* (WO 99/03137). The Examiner states that *Lei et al.* shows the invention as claimed including a transfer chamber 90; a modular plumbing tray 10 adjacent the transfer chamber and having connections from the facility to the process chambers 30; and a chamber tray adjacent the one or more of the process chambers including an injection control valve 18, the chamber tray having facility connections connected to one or more of the facility connections in the plumbing tray.

Applicants respectfully traverse the rejection. The gas delivery system 10 is not a plumbing tray contrary to the Examiner's assertion and the control valve 18 is not a chamber tray as recited in the claims. *Lei et al.* teaches a gas delivery system 10 that is attached to a process chamber 30, which is disposed about a transfer chamber 90. The gas delivery system 10 comprises all of the gas delivery components, including an injection control valve 18 as stated by the Examiner. The injection control valve regulates the flow of a process gas from the gas source to the process chamber 30. (See, *Lei et al.* at col. 5 lines 3-6.) Accordingly, *Lei et al.* does not teach, show, or suggest a plumbing tray disposed adjacent the transfer chamber and having facility connections for each process chamber and each load lock chamber, as recited in the claims. *Lei et al.* also does not teach, show, or suggest a chamber tray disposed adjacent each process chamber, each load lock chamber and the transfer chamber, the chamber trays each having a plurality of facility connections which are in fluid communication with the facility connections of the plumbing tray, as recited in the claims. Withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 20-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mooring et al.* The Examiner admits that *Mooring et al.* does not disclose a transfer chamber having two robots. However, the Examiner states that it would have been obvious to duplicate the number of robots taught by *Mooring et al.*

Applicants respectfully traverse the rejection on grounds that the Examiner has not established a *prima facie* case of obviousness. To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, not in the applicants' disclosure. See M.P.E.P. § 2143, citing *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). Furthermore, the proposed modification cannot render the prior art unsatisfactory for its intended purpose. *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984). Here, the Examiner has provided no proof or support that the transfer system disclosed by *Mooring et al.* would be equally effective with two transfer robots. Applicants submit that the Examiner has re-created the claimed invention based on the Applicants' own disclosure which is nothing more than impermissible hindsight. Impermissible hindsight is not a proper basis for a 103 obviousness type rejection. Accordingly, withdrawal of the rejection and allowance of the claims is respectfully requested.

Furthermore, the Examiner admits that *Mooring et al.* does not disclose at least one lift which comprises a support shaft, pedestal, lift assembly, and rotational assembly, wherein the lift is rotatable to maintain an orientation of the work pieces as the work pieces pass between the transfer robots. However, the Examiner states that official notice was taken that the claimed lift and rotational assemblies are prior art.

Applicants respectfully traverse this rejection. First, Applicants have previously challenged, on several occasions, the Examiner's attempt to disregard this patentable subject matter by taking official notice. Yet, the Examiner still has not provided any support from the prior art to substantiate the rejection. Second, Applicants submit that the Examiner has had ample opportunity and time to search the prior art with regard to this subject matter. In this application alone, Applicants have paid for a continued prosecution application and an appeal brief. This latest action is the second non-final

office action provided by the Examiner in this file history. Accordingly, the Examiner has not been over burdened or unduly prejudiced by having to search the prior art, and the Applicants' previous challenges have been nothing short of "seasonable" as required by the MPEP. The Examiner has simply not found this subject matter in the prior art and has unfairly maintained this "official notice". Third, Applicants note that when "official notice was taken" on April 22, 2002, the Examiner's rejection was with reference to *Rubin et al.*, not the cited prior art (*Mooring et al.*) of this rejection. Fourth, Applicants submit that *Mooring et al.* discloses a single robot system and thus, does not motivate or suggest a lift that is "rotatable to maintain an orientation of the work pieces as the work pieces pass between the transfer robots", as recited in claim 22. For at least these reasons, Applicants respectfully request withdrawal of the rejection and allowance of the claims.

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mooring et al.* in view of *Rubin et al.* Both *Mooring et al.* and *Rubin et al.* have been discussed and distinguished above. Since claim 14 depends from claims 13 and 1, Applicants submit that claim 14 is patentable for at least the same reasons as the base claim. Accordingly, Applicants respectfully request withdrawal of the rejection and allowance of the claim.

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being obvious over *Bright et al.* in view of *Rubin et al.*, and claims 20-22 stand rejected under 35 U.S.C. § 103(a) as being obvious over *Bright et al.* Applicants respectfully traverse the rejection on grounds that *Bright et al.* is prior art under 35 U.S.C. §102(e). Prior art under 35 U.S.C. §102(e) may not preclude patentability under §103. (See, 35 U.S.C. §103(c).) Both *Bright et al.* and the claimed subject matter were, at the time the invention was made, subject to an obligation of assignment to Applied Materials, Inc., the assignee of both *Bright et al.* and the present application. Furthermore, the Applicants' argument above with regard to claims 20-22 in light of *Mooring et al.* is equally applicable to *Bright et al.* Accordingly, the rejection is improper, and withdrawal of the rejection is respectfully requested.

Claims 8 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lei et al.* *Lei et al.* has been discussed and distinguished above. Since claims 8

and 12 depend from claim 1, Applicants submit that the claims are patentable for at least the same reasons as the base claim. Accordingly, Applicants respectfully request withdrawal of the rejection and allowance of the claim.

Claims 21-22 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *Rubin et al.* The Examiner states that “official notice” was taken to supplement the teaching of *Rubin et al.* to arrive at the claimed invention. Applicants traverse this rejection. First, claims 21 and 22 depend from base claim 1, which has been distinguished above. Second, Applicants have previously challenged the Examiner to provide support from within the prior art to substantiate the Examiner’s reasons for “official notice”. However, the Examiner still has not provided the requested support. Third, Applicants submit that the Examiner has provided no evidence in the record that such a modification to the system disclosed by *Rubin et al.* would not render the system inoperable. For at least these reasons, Applicants respectfully request withdrawal of the rejection and allowance of the claims.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the claimed invention. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

The prior art made of record is noted. However, it is believed that the secondary references are no more pertinent to the Applicants’ disclosure than the primary references cited in the office action. Therefore, it is believed that a detailed discussion

of the secondary references is not deemed necessary for a full and complete response to this office action. Accordingly, allowance of the claims is respectfully requested.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) An apparatus for processing substrates, comprising:
 - a) a transfer chamber comprising [one] two or more process access ports;
 - b) one or more load lock chambers disposable about the transfer chamber;
 - c) two [one] or more process chambers [disposable] disposed about the transfer chamber;
 - d) a plumbing tray [disposable] disposed adjacent the transfer chamber and having facility connections for each process chamber and each load lock chamber; and
 - e) a chamber tray [disposable] disposed adjacent each process chamber, each load lock chamber and the transfer chamber, the chamber [tray] trays each having a plurality of facility connections which are in fluid communication with the facility connections of the plumbing tray,
wherein each process chamber is disposable on each chamber tray.

15. (Amended) The apparatus of claim 1, wherein the chamber tray comprises an enclosure having one or more facilities selected from the group consisting of a pneumatic distribution manifold, process gas manifold, vacuum manifold, water manifold, and helium manifold.

28. (Amended) An apparatus for processing substrates, comprising:
 - a) a transfer chamber comprising [one] two or more process access ports;
 - b) one or more load lock chambers [disposable] disposed about the transfer chamber;
 - c) two [one] or more process chambers [disposable] disposed about the transfer chamber;
 - d) a plumbing tray [disposable] disposed adjacent the transfer chamber and having facility connections for each process chamber and each load lock chamber; and
 - e) a chamber tray [disposable] disposed adjacent each process chamber, each load lock chamber and the transfer chamber, wherein the chamber [tray is] trays each comprise a support frame having a plurality of facility connections which are in

fluid communication with the facility connections of the plumbing tray, and wherein each process chamber and each chamber tray form a modular unit.

29. (Amended) An apparatus for processing substrates, comprising:
 - a) a transfer chamber comprising [one] two or more process access ports;
 - b) one or more load lock chambers [disposable] disposed about the transfer chamber;
 - c) two [one] or more process chambers [disposable] disposed about the transfer chamber;
 - d) a plumbing tray [disposable] disposed underneath the transfer chamber having facility connections for each process chamber and load lock chamber; and
 - e) a chamber tray [disposable] disposed adjacent each process chamber, each load lock chamber and the transfer chamber, the chamber [tray] trays each comprise a support frame having a plurality of facility connections which are in fluid communication with the facility connections of the plumbing tray.